BITS & PIECES

This newsletter will be over taken this month by Zenith news. Between the sale by Zenith Electronics Corporation of Zenith Data Systems, Veritechnology, and the Heath stores to French BULL, and the introduction of several different computers there is much information to sort through.

ZENITH SELLS ZDS TO BULL

From a Zenith News Release: Oct. 2, 1989--In an action designed to bring competitive benefits to both companies, Zenith Electronics Corporation of Glenview, Ill., and Groupe Bull, of Paris, France, today signed a definite agreement under which Bull will purchase Zenith's computer business (the Zenith Computer Group, which includes Zenith Data Systems and Heath/Zenith).

The transaction will allow Zenith to position itself for further growth and industry leadership in its original core business, consumer electronics, while Bull improves its position in the microcomputer industry by acquiring a world-class company.

Under the terms of the agreement, the exact purchase price will be based on the net asset value of the computer business, as defined in the contract, at the time of closing. Based on the balance sheet as of the end of July, 1989, the purchase price would be $635 million; however, it is expected that the net asset value, and thus the purchase price, will be lower as a result of inventory reductions through the date of closing. The closing is expected to take place by year-end.

Jerry K. Pearlman, Zenith chairman, president and chief executive officer, said, "This agreement represents a major part of our strategy to enhance the long-term value of Zenith for our stockholders. Zenith will emerge as a conservatively financed company better prepared to capitalize on our strengths in consumer electronics and display technologies."

Francis Lorentz, chairman and chief executive officer of Groupe Bull, said, "Microcomputers are an essential element in our long-term strategy to enhance our position as one of the world's leading information systems suppliers. The acquisition of the Zenith Computer Group will move us into the first tier of the microcomputer industry, and will open new growth potential on both sides of the Atlantic. It further demonstrates Bull's commitment to the U.S. With complementary markets, products, plants and R&D resources, we make a perfect fit."

Zenith's Board of Directors has unanimously approved the transaction. Pearlman said, "The company has been offered a full and fair price for the computer business. The transaction will mean that our balance sheet will be strengthened significantly and our heavy debt burden will be lifted."

Pearlman and Zenith expects to report a net gain of approximately $22 million from the transaction after taxes and expenses. Zenith plans to repay short-term obligations and to retire a portion of long-term debt. "The remaining proceeds will be available for appropriate investments in new consumer electronics and component technologies, particularly high-definition television (HDTV) and advanced high-resolution color displays," he said.

Upon the completion of the transaction, Bull's world-wide revenues will grow to nearly $7 billion, and Bull will more than double its presence in the United States to a revenue level exceeding $2 billion.

In a continuation and enhancement of the existing close relationships between Bull and Zenith, the Zenith Computer Group will remain a long-term customer for Zenith's power supplies and monitors, including its "flat tension mask" monitor.

Both companies anticipate and will work to assure a smooth transition for employees and customers. The Zenith Computer Group will remain U.S.-based, with its existing management team, sales and corporate headquarters in the Chicago area, and primary manufacturing and engineering operations in St. Joseph, Michigan the companies said.

Group Bull, with world headquarters in Paris and a majority investment in Bull HN Information Systems Inc.--15 percent owned by NEC Corp. and 15.6 percent by Honeywell Inc.--based in the Boston area and headed by Roland D. Pampel, is one of the world's top 10 suppliers of information systems and solutions.

The Zenith dealers received a letter from John Frank concerning this transaction. I print parts of this here:

Dear ZDS Reseller:

Our parent company, Zenith Electronics Corporation, announced today that it has signed a definitive agreement to sell its computer business, including Zenith Data Systems, to Groupe Bull. The transaction, explained in the enclosed news release, will combine the strengths of ZDS and Bull to enhance our competitiveness. And that will bring benefits to you.

Bull's strengths in integrated systems and support of open standards will help us serve you better. We also want you to know that ZDS' strengths in government, education, retail and OEMs are complementary to Bull's vertical marketing efforts.

We anticipate and will work to assure a smooth transition for our customers. ZDS will remain U.S.-based, with headquarters in the Chicago area and primary engineering and manufacturing operations in St. Joseph, Mich. Our existing management team, as well as our sales, marketing, R&D and production staff and remain basically intact.

Gleaned from other bits and pieces of Zenith Fact Sheets, other news releases, I'll present some highlights of Zenith's history, some info on Groupe Bull, and my two cents worth.

ZENITH COMPUTER GROUP

The Computer Group of Zenith Electronics Corporation, based in Glenview, Ill., consists of four wholly owned Zenith subsidiaries: Zenith Data Systems Corporation, Heath Company, Veritechnology Electronics Corporation and Zenith/Inteq Incorporated. The group's primary engineering and manufacturing facilities are in St.Joseph, Mich. Of Zenith's 37,000 employees worldwide, about 4,000 are part of the Computer Group. Zenith's computer products revenues wee about $1.4 billion in 1988.

Zenith's worldwide shipments of personal computers (PCs) that run on the MS-DOS operating system surpassed those by any

company except IBM in 1988, and U.S. shipments of portable PCs exceeded all others', according to independent market research. The Computer Group's president is Carl A. Michelotti.

Heath Company

Founded in 1918, Heath is a world-famous supplier of electronic kits to hobbyists. Based in St. Joseph, Mich., the company offers a complete line of kit and fully assembled electronics products (including PCs), as well as home security systems, educational products, a voice-controlled PC and robot system for the disabled, and computer-based instruments for industry. Zenith acquired Heath in 1979 from Schlumberger Ltd. The president of Heath is William E. Johnson.

Veritechnology Electronics Corporation

Veritechnology Electronics Corporation (VEC) operates the chain of Heath/Zenith Computers & Electronics centers, considered one of the nation's top 10 computer retailers. With revenues of more than $200 million in 1988, VEC's chain of 70 North American stores features the full ZDS and Apple lines, plus Heathkit and other Heath Company products. Joseph Schulte is VEC's president.

Zenith/Inteq

Based in Herndon, VA., Zenith/Inteq develops and modifies personal computers and related peripherals, most of which are designed to meet the U.S. government's high-security "Tempest" specifications. Zenith acquired Inteq in 1985. Zenith/Inteq's president is Hoy Chang.

ZENITH ELECTRONICS CORPORATION

Zenith Electronics Corporation is the only U.S.-owned integrated color television and picture tube manufacturer and a U.S. leader in high-definition television (HDTV) technologies.

A diversified electronics company, Zenith develops, manufactures and markets color television sets, cable products and related consumer electronics products, high-technology electronic components for other manufacturers, and portable and desktop personal computers. With 37,000 employees worldwide, the company is based in Glenview, Ill.

The Early Years

Zenith got its start in 1918 when two wireless-radio enthusiasts set up a "factory" on a kitchen table in Chicago and began making radio equipment for other amateurs. By the early 1920's, the infant radio industry began to grow as did the business which sold radios under the name "Z-Nith" (the origin of the Zenith trademark, derived from the call letters of the founders' amateur radio station, 9ZN). In 1923, Zenith Radio Corporation was incorporated in Illinois.

The young company's early accomplishments included the world's first portable radio (1924), the first home receivers to operate on household current (1926), and the first automatic pushbutton radio tuning (1927, the year the slogan, "The quality goes in before the name goes on," was first used).

In 1929, Zenith was first listed on the New York Stock Exchange under the symbol "ZE."

Founded on radio engineering, Zenith soon became a leader in other consumer electronics developments, such as the first all-electric television station (1939), the first FM radio station in the Midwest (1940) and the world's first subscription television system (1947).

Zenith pioneered AM and FM radio broadcasting (including the invention of the stereo FM radio broadcast system, authorized by the FCC in 1961 and still in use worldwide) and played a key role in developing broadcast standards for B&W and color TV.

[I understand Zenith also came out with the first "walkman", a radio to wear around the neck with headphones. Somebody there decided to kill the product, and it never got to market. Sony later came out with the same concept and made millions on it - perfect example of Zenith's top heavy corporate management decision ability.]

The '80s

Building on Heath's entry into personal computers, Zenith formed its computer-products subsidiary, Zenith Data Systems, in 1980.

Reflecting the strong growth of Zenith Data Systems and other newer businesses, the company changed its name from "Zenith Radio Corporation" to "Zenith Electronics Corporation" in 1984.

High-Definition Television

Today, building on the company's tradition of technical excellence, Zenith is a leader in the development of HDTV broadcast and display technologies.

The company's "Spectrum Compatible HDTV System," first unveiled in September 1988, is the only proposed HDTV broadcast technology that meets all the key criteria of performance, coexistence with existing TV technology and efficient use of the TV broadcast spectrum. In 1989, Zenith began initial research on building large-screen, low-cost versions of the FTM display for HDTV applications.

[HDTV is the future in television, giving picture quality comparable to a movie house. Unfortunately, the U.S. has waited too long and are far behind the Japanese. However because of the restrictions and conditions placed on the compatibility of HDTV with regular TV, Zenith may have a chance. Either way you look at it, Japan will be viewing this new TV marvel far before the U.S. ever will. Consultant George Stalk with the Boston Consulting Group says "The chances are 95% that they'll [Zenith] fail." While the Japanese and French competitors each spent about $1 billion on HDTV research last year, Zenith only spent $100 million. It will be very difficult to catch up, and it may well be the demise of Zenith. What they should have done was get rid of the TV business, strengthen the computer business, and then get rid of most of their corporate management people and started over.]

GROUPE BULL BACKGROUNDER

Introduction

Groupe Bull is one of the world's ten leading suppliers of information systems. Founded in Europe more than 50 years ago, Groupe Bull today is a worldwide organization, consolidating two companies - Bull S.A., based in Europe, and Bull HN, based in the U.S. The group is the leading European-based supplier of integrated information systems.

Bull Growth Worldwide

A pioneer in data processing, Bull began as Egli Bull in 1931, manufacturing tabulating machines designed by Fredrik Rosing Bull, an engineer at a Norwegian insurance company. Right from the outset, the company distributed its products throughout Europe. The company's evolution tracked the growth of the data processing market. Bull introduced one of the world's first electronic computers in 1951. By the mid 1960's, Bull was Europe's largest and the world's second-largest computer manufacturer.

During the 1970's, Bull's sales were strong, revenues increased and the company (then called Cii-Honeywell Bull) consistently

held the second market-share position in France (behind IBM). During the late '70's and early '80's, however, growth slowed and losses mounted. In 1982, the French state became Bull's majority shareholder and now owns about 92 percent of the share capital of Compagnie des Machines Bull (CMB), the holding company for all of Groupe Bull's holdings. The remaining eight percent of CMB stock is publicly traded on nine European stock exchanges. As Chairman of the Board of CMB, Francis Lorentz bears fiduciary responsibility to the shareholders.

Bull HN Information Systems Inc. is the outgrowth of Honeywell Bull Inc., the company jointly created by Groupe Bull, Honeywell Inc. and NEC Corp. in March, 1987 from the former Honeywell Information Systems Division. Bull HN's headquarters moved form Minneapolis, Minnesota to Billerica, Massachusetts in 1988. Its name became Bull HN Information Systems Inc. in January, 1989, after CMB acquired a majority shareholding. CMB currently holds 69.4 percent of Bull HN, Honeywell Inc. holds 15.6 percent and NEC Corp. hold 15 percent.

[It's interesting to note that Groupe Bull made a $50.9 million profit in 1985, with $5.3 billion in net revenues. This is indeed a very strong company.]

ZENITH COMPUTER GROUP AND GROUPE BULL: LONG-TERM COMPETITIVENESS THROUGH COMPLEMENTARY RESOURCES

"Bull is a multibillion-dollar global corporation focused solely on the information systems business, and the Zenith Computer Group's long-term value will be enhanced by a combination with such a world-class player. At the same time, our stockholders will be able to realize a significant portion of that greater long-term value today, as the purchase price reflects," Pearlman said.

Since Zenith acquired the Heath Company from Schlumberger Ltd. (for $60 million) in 1979 and established Zenith Data Systems (ZDS), Zenith management has built its microcomputer business from $10 million in 1980 into a billion-dollar-plus operation through technical excellence and marketing expertise in selected channels. The Zenith Computer Group includes ZDS, Heath Company and Veritechnology Electronics Corporation.

Over the same period, Bull has become Europe's leading supplier of distributed information systems, and has established a strong base in North America through Bull HN Information Systems Inc., headquartered in Billerica, Mass. -- and headed by Roland D. Pampel, as president and CEO.

Worldwide Resources

The Zenith Computer Group's U.S.-based and Bull's European-based microcomputer operations fit well together, Lorentz said, and combining the two will enhance the worldwide competitiveness--and help realize more fully the potential of the production and technical resources--of both.

Lorentz said the combination means that: * Bull will offer customers a complete product line, ranging from large mainframes to mid-range systems, and from laptops to powerful desktops; * Bull will bring new systems expertise and market opportunities to the Zenith Computer Group's North American business; * Bull will open new growth opportunities for the Zenith Computer Group in Europe; * Bull will gain increased volumes to compete more effectively; and * Bull will significantly increase the share of its revenue coming from value- added resellers, retailers and other indirect channels.

Bull's worldwide production capabilities will be enhanced by Zenith Data Systems, especially the ZDS manufacturing facility in St. Joseph, Mich. At the same time, Bull's plant in Villeneuve d'Ascq, France, will produce ZDS products for Europe. ZDS products will also continue to be produced on a contract basis in Zenith Electronics Corporation's Kells, Ireland, plant.

Lorentz also said that Bull will have the opportunity to create a worldwide network of R&D operations, including the new Zenith Computer Group Technology Center in St. Joseph, Mich., and Bull's labs in Massy, France.

Commenting, Lee Hart writes: I think this will be good for Heath and its customers. Interdivisional squabbles and office politics became a real problem between Heath and Zenith, and cost the company many talented people. It was destroying Heath's reputation for quality and service as well. Bull has a chance to "wipe the slate clean", and make a fresh start. And since Bull is not in any particular financial bind, Heath's profits can be plowed back into new product development again, instead of subsidizing Zenith's losses in consumer electronics.

Zenith on the other hand, seems to be losing their only profitable divisions. They get desperately needed cash, but will use much of it for creditors and big dividends (to placate their new corporate-raider board members). Hopefully, they will make a substantial investment in R&D for HDTV and other new technologies. Even still, I wonder how they will survive the next few years without massive losses. Zenith may be destined to become just another foreign-owned nameplate for imported TVs.

Now my comments: I think this will be a good move. As many of you know, especially those with Heath in the earlier days when Schlumberger Ltd., another French company, owned Heath, comradeship and support were at its peak. There were support lines open for all the major product lines, including computer hardware and software. Manuals were excellent and detailed, and were included with the kits you purchased. If you purchased assembled products, manuals were easily obtained, and were low cost. If you had problems with a product, your "local" store or one of the support lines was sure to help you out. You purchased a computer and there was lots of software bundled with it to get you going.

Ever since Zenith took over, things started going downhill. They cut out the tech support lines, and the manuals became thinner. The only software one now gets with a computer is the operating system. Most Zenith salespeople and even most of the technicians are partially knowledgeable on the current computer line. Mention an H89 or a Z100 and they don't even know what you are talking about, much less be able to help you or repair one for you.

And what about the H/Z stores? They have become almost a joke, with most of them stocking very little if any Heath/Zenith computers, and few kits. Everything "must be special ordered". They push Apple computers more than their own! More top notch corporate strategy?

Zenith's policy of 50% or more off retail price on computers and associated products to government and universities sure got them lots of business, but at the expense of not making a profit, and making all the rest of us absorb the slack in profits. This is one reason why Zenith computers are among the highest price computers on the market, and why more and more users once faithful to the Heath and/or Zenith name now have looked elsewhere for the computers. I have had very many individuals and corporate clients in the past years tell me they appreciate my newsletter and/or my services, but will no longer continue with either. The reason in every instance has not been with myself, my newsletter or my services, but with Zenith, their attitude, prices, etc. I've known many Zenith dealers who have dropped Zenith for one reason or another. Zenith/dealer relationship has never been strong, and now with the government and university contracts expired, they need to depend on dealers more than ever. I could go on and on, but I'll stop the complaints there.

I feel Bull with their financial resources, and commitment will breathe new life into the Zenith computer end. After all, you don't go out making millions of dollars profit each year by being corporate stupid and treating end users, customers and dealers

like they are doing you a favor by selling you their product. I think back to the days of Schlumberger, and am thinking the French know how to do things better. I feel very positive about this move because things certainly couldn't have gotten much worse. I anticipate an upward swing in new developments, after sales support, and possibly better pricing positioning in the marketplace.

I am hoping that Bull will eventually get rid of some of the Zenith dead weight and install some management who know how to run a business. I fully intend to write a long detailed letter to Bull about my experiences with Zenith and the problems I have went through as a dealer and an end user. Names will be thrown out at that time. I am not expecting overnight changes, but hopefully we'll see some gradual improvements.

ZENITH INTRODUCES NEW COMPUTERS

The following information was taken from ZDS NEWS RELEASE bulletins and compiled in a brief format for your information. I will add comments and clarifications when appropriate.

Z-386 SX PRODUCT ANNOUNCEMENT

In the past, users had to pay a premium for 386 power. A cost effective means to 386 processing capabilities is now available, Zenith Data Systems'[BULL?] new Z-386 SX.

Zenith Data Systems, through innovative system design, has developed an Intel 386SX based computer system that rivals 80386-based systems processing power. The Z-386 SX provides both high expandability and the ability to run 386-based software in a cabinet footprint no larger than most monitors.

FEATURE HIGHLIGHTS

* 16 MHz 386SX microprocessor, * Support for 80387SX co-processor, * 1M byte RAM standard expandable to 8M byte on system board, * Cache memory standard, * Four open slots, * 16-bit VGA video card supporting EGA, CGA, MDA, and Hercules video standards, * 3.5" 1.4M byte floppy disk drive, * AT-type IDE hard disks: -40M byte (23ms), -80M byte (19ms), * System board integrates an IDE (AT-type) drive host adapter and floppy disk drive controller [watch out for this one? - seems like I've heard about that before with their Z-159 design which they promptly discontinued!-ed], * 16-bit integrated I/O controller: -Two 9-pin serial ports, -One 25-pin parallel port, * Zenith enhanced 101-key keyboard, * MS-DOS 3.3 Plus, * MS-WINDOWS/386 (hard disk drive models only), * One year carry-in warranty.

SYSTEM MODEL NUMBERS

The Z-386 SX is available in three configurations.

MODEL# Z-386 SX Model 1 DESCRIPTION: Basic model as described above without any hard drive.
MODEL# Z-386 SX Model 40 DESCRIPTION: 40M byte 28ms IDE HDD with embedded 1:1 interleaving controller, and other features ad described above, plus MS-Windows/386.
MODEL# Z-386 SX Model 80 DESCRIPTION: 80M byte 19ms IDE HDD with embedded 1:1 interleaving controller, and MS-Windows/386.

SYSTEM ARCHITECTURE
or
WHAT IS AN -SX?

The 386SX microprocessor is a cost reduced version of the 80386 microprocessor. Like the 80386, the 386SX provides 32-bit internal processing. The 386SX is limited to 16-bit bus traffic and 24 address lines; this differs from the 80386 which has 32-bit address and data buses. These concessions, along with lower materials costs, surface mount leads, and a higher yield ratio

translates into a less expensive micro-processor capable of running 80386-based software. To a user, 386SX based computers provide the ability to run 32-bit software at a much lower cost than 80386-based computers. [And also somewhat slower, especially in memory, disk I/O, and/or video intensive! It's not that bad, however. Current disk I/O cards and video cards are at best 16-bit cards anyway. So even with a standard 80386, the disk I/O and video only operate with 16 data bits anyway. As for addressing, until you get high in the megamemory, you really do not use the extra addressing bits. The only real bottleneck by comparison will be memory I/O which actually is 32 data bits on the 80386 systems. - ed]

In comparison to the 16MHz 80386 processor, the 386SX chip provides 75% of the performance speed with 32-bit software, and 90% of the performance speed with 16-bit software. A system speed is dependent on more than raw processor speed. Video data width and video memory speed; system RAM speed, use of cache and caching scheme; hard disk drive average access time, data transfer rate, and interleave ratio; in addition to the use of slushware and other system speed enhancing methods all affect the speed of the system. The Z-386 SX is engineered to maximize the speed and capabilities of the 386SX processor while maintaining a favorable cost/performance ratio.

MEMORY SUBSYSTEM 1M byte (four banks of 256K byte SIMMs) of system memory is standard in all models of the Z-386 SX. Up to 5M byte of memory can be installed on the system board using the optional 2M byte SIMM memory upgrades (Model number: Z-605-1) [presently $1299 Zenith price for minimum of 2 megs!!! -ed]. To increase system memory beyond 5M byte on the system board, the original 1M byte of memory (four 256K byte SIMMs) must be removed from the SIMM sockets. The addition of one Z-605-1 2M byte memory upgrade will increase system memory to 6M byte, a second Z-605-1 will increase memory to 8M byte. The memory located on the system board operates at an effective zero wait-states.

The system supports a maximum of 16M byte of memory. Memory above the 5M byte or 8M byte on the system board can be added using third party memory cards in any of the four open expansion slots.

SYSTEM CACHE MEMORY In order to maintain effective zero wait-states, Zenith Data Systems has incorporated a fast cache in the Z-386 SX. Zenith Data Systems developed our own cache controller featuring a 16-level deep write queue which improves system performance on memory writes. Writes to system memory are stored until the processor is idle; once idle, the CPU clears the write buffer and updates system memory. If sixteen writes have been stores in the queue, the processor must suspend all tasks and write to the system memory in order to maintain system memory integrity.

The posted write technique allows the system to hold 16 times more data than competitor's systems in cache before the system must update memory. This creates a more efficient environment and lessens the amount of wait-states required to write to system memory.

SYSTEM BOARD All system hardware components, excluding video controller, are located on the system board. These components include: CPU, memory, I/O, floppy disk drive controller, and hard disk drive interface.

The backplane is mounted perpendicular to the system board. Five 8/16-bit ISA slots are found in the Z-386 SX. Slot number one is located closest to the system board; slot number five is located furthest from the system board. A VGA video board is provided in slot number two.

16-BIT VGA VIDEO CARD A 16-bit fast VGA card is standard in all configurations of the Z-386 SX. The video card provides VGA

BIOS and hardware level compatibility and supports the EGA, CGA, MDA, and Hercules video standards.

Video performance is enhanced with Zenith Data Systems' "Slushware" technique whereby slow 8-bit video ROM is copied into fast 16-bit RAM at system boot-up.

MASS STORAGE There are two hard disk drive configurations of the Z-386 SX. Both configurations incorporate IDE [which means when you want to change or upgrade them you will pay a very high premium, if you can even obtain them! -ed] drives with an embedded controller and provide 1:1 interleaving. An interface is provided on the system board for the hard disk drive cable. Hard disk drive configurations are as follows:
Model 40 - 40M byte IDE with 28ms average access time
Model 80 - 80M byte IDE with 19ms average access time.

All configurations include a 1.4M byte 3.5" floppy disk drive. The floppy disk drive controller is located on the system board. An optional 5.25" or 3.5" floppy disk drive is available for use internally to the system.

The system supports three internal devices and provides the circuitry for one IDE hard disk drive and up to two floppy disk drives. Bezel openings are provided for one 3.5" device and one 5.25" or 3.5" device.

Jumpers are provided to separately disable the hard disk drive interface and the floppy disk drive controller. Once disabled, a SCSI, ESDI, or ST-506 controller and mass storage devices may be used with the system.

POWER SUPPLY The 150 watt power supply provides ample power for a fully configured system and also incorporates 115/230V switch-mode capability for international operation.

SYSTEM SOFTWARE MS-DOS 3.3 PLUS is standard on all Z-386 SX; MS-WINDOWS/386 is standard for all hard disk drive systems. MS-OS/2 Version 1.1 with Presentation Manager is also available as a software option.

ZENITH INTRODUCES NEW LAPTOPS

SUPERSPORT SX PRODUCT ANNOUNCEMENT

PRODUCT OVERVIEW

Zenith Data Systems, is introducing an innovative portable solution - "the SupersPort SX" - the first full-function, battery operated 80386-SX portable computer with VGA video. The SupersPort SX brings portable computing into the 1990s with cost effective 32-bit processing.

The SupersPort SX comes standard with VGA video, Zenith Data Systems' acclaimed Page-White screen, and a rapid charge (three hour charge time) battery. The performance advantages of the 80386 architecture are clearly understood. And, as software manufactures continue to move their applications towards 32-bit performance, the SupersPort SX clearly establishes a cost effective solution today, with a link to tomorrow's application solutions.

SUPERSPORT SX HIGHLIGHTS

* 16MHz 80386-SX microprocessor, * 1M byte RAM standard, expandable to 8M byte, * 40M byte and 100M byte hard disk drives available, * 1.4 byte floppy disk drive, * Page White screen, * VGA capabilities on LCD, * Co-processor socket, * 79-key keyboard, * Slot for optional 300/1200/2400 bps modem, * I/O interfaces standard: -9-pin RS232C AT compatible serial port, -Centronics compatible parallel port, -RGBi port (VGA out), -External floppy disk port, -Expansion bus connection, * Rapid charge battery for 3 hour charge time, 4.7 pounds, * 12.2" wide x

12.2" deep x 3.4" high, * 12.1 pounds without battery, * Attached handle for easy carry, * One year carry-in warranty, * IQ warranty options, such as overnight, * MS-DOS 3.3 PLUS.

SYSTEM SPOT LIGHT

CPU Intel 80386-SX microprocessor, * 16 or 8MHz, * Keyboard toggles or setup screen menu for speed selection.

RAM MEMORY 1M byte of RAM standard, * Expandable to 8M byte with 2M byte memory upgrades.

ROM 64K byte ROM for BIOS, including monitor ROM and real-time clock/calendar

SOFTWARE MS-DOS 3.3+ standard with system, * Real-time clock/calendar in ROM.

VIDEO DISPLAY Page White screen which gives clear and sharp black characters on a white background, * 80 characters x 25 lines, 10 inch diagonal, * 640 x 480 VGA compatible, * 16 shades of gray for color emulation, * Fluorescent backlighting, * 180 degree tilt, * Separate brightness and contrast controls.

KEYBOARD 79-key keyboard, * 101/102-key keyboard compatibility.

INPUT/OUTPUT PORTS Serial: 9-pin male IBM-compatible serial port, * Parallel: 25-pin female Centronics-compatible printer port (bi-directional), * RGBi: VGA-level color monitor connection, * External floppy disk drive: Miniaturized 20-pin floppy disk drive connector, * Slot for optional 2400 bps Hayes-compatible modem with RJ11 connector.

POWER Detachable/rechargeable 48WHr NiCad battery pack, 4.7 pounds, * Rapid charge battery, 3 hours recharge time, * External autosensing 110/220 VAC, 60/50 Hz adapter/charger.

WARRANTY One year limited carry-in warranty, * Executive warranty options available.

SupersPort SX Model 40 - SupersPort SX with 40M byte hard disk drive.
SupersPort SX Model 100 - SupersPort SX with 100M byte hard disk drive

NEW OPTIONS
ZA-180-85 **Battery pack,** 48WHr NiCad, rapid charge
CB-31-6 **Diagnostic,** portable series
ZA-3040-EB **Expansion chassis,** 3-slot box with cable
ZA-180-86 **Memory upgrade,** 2M byte
ZA-180-87 **Memory upgrade,** 2M byte to reach above 5M byte
ZA-3700-CI **Numeric co-processor,** 80387-SX.

CURRENT OPTIONS
ZA-181-7 **Adapter,** automobile cigarette lighter
ZA-180-69 **Battery charger,** external
ZA-180-62 **Carrying case,** with pocket
ZSS-180-54 **Drive,** lightweight 5.25" external floppy with cable and adapter
ZKB-2 **Keyboard,** 101-key
ZA-181-24 **Modem,** 300/1200/2400 bps asynchronous
ZCM-1490-Z **Monitor,** FTM color VGA
TS-81-02 **Software,** LAP-LINK PLUS data transfer kit.

SYSTEM ARCHITECTURE

Intelligent Power Management In april 1988, ZDS introduced Intelligent Power Management techniques along with a new generation of portable computers. These techniques allows users to extend battery life by configuring the system dynamically or within a setup session. SupersPort SX's power management characteristics include: * **Display:** from the setup screen, users

can set backlight timeouts for typical use under either battery or AC power. Brightness and contrast controls allow adjustments for power conservation. * **Mass storage:** from the setup screen, the hard disk drive can be set for power down after a given period of inactivity. * **Microprocessor:** 16MHz and 8MHz dual speeds available. Users can conserve power at the lower speed. Speeds can be selected from either the keyboard dynamically or from the setup screen. * **Ports:** from the setup screen, users can enable or disable the ports, thus rechanneling the unused power flowing to power the ports into powering the CPU.

MICROPROCESSOR SupersPort SX is designed around the Intel 80386-SX microprocessor. It runs at 16MHz, but can be toggled down to 8MHz for clock dependent software or for saving power. The system also comes standard with a co-processor socket.

POWER SUPPLIES The system includes an autosensing adapter/charger with detachable AC cable. This will switch automatically between 110VAC or 220VAC operation.

In addition, a detachable 48WHr rechargeable NiCad battery pack is included with the system. Battery life will vary depending heavily on backlight usage, disk access, and on-board memory usage. Battery life expectancy should be between 3-4 hours, and can be extended by use of the Intelligent Power Management capabilities within the Monitor ROM.

The battery is a rapid charge NiCad with a three hour charge cycle and can be recharged either connected or detached from the system.

Another beneficial feature of battery operation is the ability of the system to automatically switch from AC to DC power in case of a power failure while operating under AC power. This gives the user a "built-in" uninterruptible power supply.

SUPERSPORT 286e

PRODUCT OVERVIEW

SupersPort 286e adds register-level VGA video and other enhancements to the market-leading 80286-based laptop computer. The SupersPort 286e displays register-level VGA video on the new Bright Mode screen which is a fluorescent-backlit black-on-white liquid crystal display (LCD) with contrast ratios rivaling those of CRT monitors.

SupersPort 286e also benefits from incorporation of the 16-bit video interface originally incorporated in ZDS portable products in April of 1988. 16-bit video interface allows fast refresh of the screen, thus increasing the speed with which graphics and text are updated on the screen.

The new video technology in SupersPort 286e is complemented by the preinstallation of the expansion bus port as a standard port in the laptop. Buyers would now simply order the optional expansion box under ZDS model number ZA-3040-EB.

Another performance enhancement in SupersPort 286e is the use of one-to-one (1:1) interleave hard disk drives from Conner Peripherals as pioneered by ZDS in the April 1988 introduction. This 1:1 interleave drive replaces the former 3:1 interleave Conner Peripherals hard disk drive.

With both the 16-bit video interface and the 1:1 interleave hard disk drives, users will see an increase in performance over the original SupersPort 286.

SUPERSPORT 286e PORTABLE HIGHLIGHTS

12/6MHz 80286 microprocessor with zero wait states, * 1M byte memory, * 20M byte or 40M byte 1:1 interleave Power-Miser drives, * 1.44M byte/720K byte 3.5" floppy disk drive, * Bright Mode screen, * Register-level VGA, * 16-bit video interface, * I/O interfaces that are standard: -9-pin RS232C AT-compatible serial port, -Centronics-compatible parallel port, -RGBi port, -External FDD port, -Expansion bus out (XT-level). * 12.2" wide x 12.2" deep x 3.35" high (without battery), * 11.6 pounds (without battery), * One-year carry-in warranty, * IQ Warranty options, such as overnight, * NiCad battery and 110/220VAC adapter/charger, * MS-DOS 3.3+.

SYSTEM MODEL NUMBERS

SupersPort 286e Model 20 - SupersPort 286e with 20M byte (28ms) hard disk drive
SupersPort 286e Model 40 - SupersPort 286e with 40M byte (25ms) hard disk drive.

NEW OPTIONS

Model: ZA-180-85 **Battery Pack,** extra 48WHr NiCad with rapid-charge feature, 4.7 lbs.
ZA-180-64 **Expansion Card,** 2M byte RAM with EMS and extended memory capabilities
ZA-3040-EB **Expansion Chassis,** 3-slot XT-level with cable.

CURRENT OPTIONS

Model: ZA-181-7 **Adapter,** automobile cigarette lighter
ZA-180-69 **Battery Charger,** off-line for additional battery charging
ZA-180-65 **Battery Pack,** replacement 48WHr NiCad, 4.06 lbs.
ZA-180-83 **Carrying Case,** nylon with printer pocket
ZAS-180-54 **Drive,** external 360K byte 5.25" floppy with cable and 110/220 VAC power supply
ZA-180-66 **Expansion Card,** 1M byte RAM with EMS and extended memory capabilities
ZA-3034-NP **Keypad,** 24-key detachable numeric
TMP-200 **Manual,** technical
Z-416-SS **Numeric Co-processor,** 80C287
ZA-181-24 **Modem,** 2400/1200/300 bps internal Hayes-compatible.

The system will be available late 1989. The new peripherals will be available at the same time.

TURBOSPORT 386e

PRODUCT OVERVIEW

Editors note: We will not devote much space to this one as it is basically the same thing as the old TurbosPort 386, but faster and with a new VGA display. Most everything else is the same.

ZDS is introducing a system which others thought could not be done - a high end 20MHz 80386 portable system with 2+ hours of battery life and VGA video, the "TurbosPort 386e."

Now it not necessary to compromise power computing when traveling. Users such as financial analysts, application software developers, and business consultants require fast, powerful computing, not only in the office, but on the road as well... TurbosPort 386e brings power portable computing to those in need.

HIGHLIGHTS

* 20 MHz 80386 microprocessor, * 2M byte RAM standard, expandable to 3 MB, * 40M byte hard disk drive, * 1.4M byte floppy disk drive, * 640 X 480 Page White screen with 16 shades of grey VGA video, * 79-key detachable keyboard, * Standard 300/1200/2400 bps Autosync modem, * I/O interfaces standard: -9-pin RS232C AT compatible serial port -Centronics compatible parallel port, -RGBi port (VGA out), -Expansion bus connection. * 53WHr rapid charge battery for two hour charge time, 3.3 pounds, * 13.25" wide x 14.75" deep x 4.75" high, * 14.7 pounds without battery, * Attached handle for easy carry, * One year

carry-in warranty, * IQ warranty options, such as overnight, * MS-DOS 3.3 PLUS.

TurbosPort 386e Model 40 - TurbosPort 386e with 40M byte hard disk drive and internal Autosync modem

SYSTEM OPTIONS

ZA-3034-22 Adapter, 110/220 VAC
ZA-3034-HC **Battery Pack**, 53WHr NiCad, rapid charge
ZA-3034-CS **Carrying Case**, with pocket
CB-31-6 **Diagnostic**, Portable series
ZA-3034-EB **Expansion Chassis**, 3 slot box with cable
ZKB-2 **Keyboard**, 101-key
ZA-3034-NP **Keypad**, external numeric
TM-3034 **Manual**, technical
ZA-3034-ME **Memory Upgrade**, 1M byte
ZCM-1490-Z **Monitor**, FTM color VGA
ZA-3600 -CI **Numeric Co-processor**, 80387
TS-81-02 **Software**, LAP-LINK PLUS data transfer kit.

POWER SUPPLIES

The system includes an autosensing adapter/charger with detachable AC cable. This will switch automatically between 110 VAC or 220 VAC operation.

The battery is a rapid charge NiCad with a three hour charge cycle and can be recharged either connected to the system or detached from the system.

Another beneficial feature of battery operation is the ability of the system to automatically switch from AC to DC power in case of a power failure while operating under AC power. This gives the user a "built-in" uninterruptable power supply.

ANAPRO NEWS

Found a bit of time to write so here is another update on things happening my way (ANAPRO and personally). It is said that when it rains, it pours. Well, around here there has been a shower of happenings! After completing my graduate studies at UCSB this June, I started looking for appropriate work. Most of you must be aware that California is the land of high prices [and earthquakes! - ed]. The area where we now live, San Luis Obispo County, is a land of high prices and low wages! It is a very beautiful area from the standpoint of scenery, weather and proximity to metropolitan services. The problem is that it seems that a high proportion of Los Angeles and San Francisco residents would like to live here. The result is a large pool of professional people with few jobs to go around.

I enjoy teaching but was only able to secure a part-time position at the local community college teaching C programming and business math. In order to earn a bit more money for the family, I also took on a part-time position at another JC 48 miles away. Then suddenly, Cal Poly (a local campus of the state university) offered me a part-time position, which I gladly accepted. No sooner did I start teaching at Cal Poly when the county computer department offers me a full-time job as a programmer! And if this is not enough, Cal Poly offers me another part-time assignment and I am invited for an interview with a local manufacturer for a C programmer position. The end result of this activity is that I am now teaching at three schools and working as a programmer for the county. Some of the classes end in December and I may get time to catch my breath.

Don't get me wrong, I enjoy all the activity. I teach C programming, introduction to computers (MSDOS, WordPerfect, BASIC and Lotus 123), AC/DC electronics and business mathematics. And for the county, I am a COBOL programmer in an IBM mainframe environment. How is that for diversity. Incidentally, the IBM mainframe at the county is one of the latest

and fastest IBM products, but the software on these systems is rooted in the 60s and is shockingly primitive. How slowly the mainframe world turns!

ANAPRO did not die in all this. To prove this, I am announcing a new release of PCFORM in the CPC package. The new version of the format program still requires the H37 controller, but it now includes IBM single sided as well as double sided formats. Those who have only single sided disk drives can now format their own PCDOS disks. To get an update, send your CPC serial number and $5 to cover shipping and handling.

Another item being made available to the Heath H8/H89 community is an HDOS to CP/M transfer utility. This one was written by Grant Gustafson and has been released for non-profit distribution. It is called CPH and includes C source code and a DOC file. I have uploaded the program to the QUIKDATA bulletin board and it is up to Henry if he makes it available in a partition [it's in the download file section -ed]. It will also be sent to The Staunch 8/89'er for the 8 bit library collection.

That is all the time I have for now, hope to get some more in by next month. - Pete Shkabara

BUG IN MS-DOS 3.3+

Just a note to let you and your subscribers know of a bug in the Zenith MS-DOS 3.3+. This came about at my place of work, and has been verified by the local Heath/Zenith store.

The BACKUP utility for MS-DOS 3.3+ has a bug that creates an invalid backup disk only during the month of October. In the BACKUPID.@@@ file, the current month is saved as 13 rather than 10, resulting in an invalid backup disk when RESTORE attempts to restore the backup.

There are a couple of temporary fixes for this problem: 1. Set the date on the computer to a month other than October when creating the backup. 2. Modify the BACKUPID.@@@ file to correct the problem. This would be required in order to restore files from a backup created during October.

The following will patch the BACKUPID.@@@ file and needs to be performed on each backup disk: 1. Using the ATTRIB command, remove the read-only attribute on the file BACKUPID.@@@   C> ATTRIB -R A:BACKUPID.@@@ 2. Using DEBUG, read in the file and modify the contents using the following: C> DEBUG A:BACKUPID.@@@, -E105 OA 09, -W, -Q. The two numbers after the E105 entry in debug refer to the month and day (of the backup) entered in HEX respectively. The example is for October 9th. 3. Using the ATTRIB command, place the read-only attribute back on the file BACKUPID.@@@   C> ATTRIB +R A:BACKUPID.@@@

By dumping the contents of the BACKUP.COM program, I determined that it was written in the C Programming Language. The file was evidently opened in the text mode that translates all Linefeed (OxOA) characters into Carriage Return and Linefeed pairs (OxOD OxOA). Therefore, when a Linefeed character (October = OxOA) is written, it is translated. The file should have been opened in binary mode.

Enclosed please find a copy of a program that I created which will automate the patch by prompting for each backup disk. I can supply the program in executable form to those that need it. Requests can be sent to me along with a disk and $1.00 to cover postage. Christopher S. Simmons/ 1832 NW Grant Circle/ Corvallis, OR 97330 (503) 757-2871.

MISCELLANEOUS BITS

*   You often see in the Zenith PC owners manuals that certain slots are **ZDS proprietary slots**. Seems that they are all

electronically the same, but only mechanically proprietary. If one removes the metal mounting bracket on a card, then it will usually fit. The slots are usually taller than the rest.

* Ralph Shepard purchased a **Magnovox color monitor for his Z100 computer**. He noticed an **annoying noise** coming from his Z100 after that. He writes "I discovered that moving the Magnovox Monitor off the top of my H/Z100 far enough cut the noise completely! I found a piece of perforated aluminum and covered the top of the computer with it. This was enough to cut the noise so that it is not noticeable, allowing the monitor to sit on top of the H/Z 110.

* Now that Zenith has finally caught up and has their laptops with the VGA displays, NEC just introduced their **laptop with a color LCD display**. Problems consist of adding $2000 to the computer cost and consuming much more power.

TECH FORUM

WH-64 MOD TO USE 64K DRAM CHIPS

This brief procedure describes the necessary wire additions to the Heath H8 WH-64 memory card to enable the use of 64K memory chips. It was submitted by Ronald West, to whom we owe our deepest thanks.

The Heath WH8-64 memory card used four banks of 8 16K dynamic RAM chips, for a total of 32 chips. When this card was introduced, the 64K chips did not exist. You can now save on power and heat dissipation by installing 8-64K dynamic RAM chips instead, with little modification and no wire cuts. Memory chips which can be used include any of the generic 4164 DRAMS made by a number of manufacturers. To implement this change, follow this procedure:

a) Remove all existing Ram chips from the circuit board.

b) Remove all Bank selection switches except Bank 0. Turn all 8 positions of bank 0 to the ON position. If you do not have 0 orig. option then you may have to leave switch 1 on the Bank 0 selection switch in the OFF position (not sure as I have 0 orig.).

c) Install the eight 2164 or 4164 DRAM chips in the U25 thru U32 (Bank 0) positions.

Make the following wiring additions:
U32-9 TO U31-9	U31-9 TO U30-9	U30-9 TO U29-9
U29-9 TO U28-9	U28-9 TO U27-9	U27-9 TO U26-9
U26-9 TO U25-9	U25-9 TO U53-18	U53-18 TO U54-2
U54-2 TO U55-2	U53-2 TO U61-8	U54-3 TO U62-3
U55-3 TO U62-5		

Test the board as follows:
Install the memory board in the H8 and turn it on. Assuming you get the customary BEEP indicating the processor is running, start the memory test routine which is in ROM. If you do not get the beep, turn off power immediately, and double check all your wiring using an ohmmeter if necessary. Check that all RAMs are installed properly with no pins bent out or under the chip.

CLASSIFIEDS

BITS & PIECES

ZDS AWARDED PC-SUPPORT CONTRACT

GLENVIEW, IL, Nov. 1, 1989--A U.S. government contract to support the Defense Department's installed base of Zenith Data Systems (ZDS) personal computers (PCs) was awarded today to the computer products subsidiary of Zenith Electronics Corporation.

Under the terms of the Standard Desktop Computer Companion Contract, ZDS is expected to supply advanced peripherals and software, plus training and maintenance services, to the U.S. Navy, Marine Corps, Army, Air Force, Defense Logistics Agency and other Defense Department agencies over five years. The government also can receive maintenance, training and support services from ZDS for an additional two years. The contract is expected to result in revenues of more than $534 million over seven years.

"Our goal is to protect the government's sizable investment in ZDS PCs through hardware upgrade paths, sophisticated new software and high-tech peripherals," Buchsbaum said.

"We will, in effect, be doing what we've been doing throughout the duration of these contracts: fully supporting the installed base of ZDS PCs to extend their lifecycle, and selecting and distributing the industry's best and newest options for maximizing the potential of these machines," Buchsbaum said.

ZDS President John Frank said, "Since the agreement with Groupe Bull was announced, there has been some speculation regarding our ability to win major government contracts.

"We believe that, with this award, the government is clearly indicating that ZDS will continue to be judged on its ability to provide state-of-the-art products at the best possible prices," Frank said.

ZENITH REPORTS THIRD-QUARTER LOSS

GLENVIEW, IL., Oct. 25, 1989--Zenith Electronics Corporation, which earlier this month announced an agreement to sell its computer business, today reported a third-quarter loss from continuing operations of $9.1 million, or 34 cents per share. In 1988, third quarter earnings from continuing operations were $2.0 million, or 8 cents per share, including non-recurring gains of $2.5 million from the disposition of properties and $2.1 million from a patent litigation settlement.

Third-quarter 1989 sales from continuing operations were $377 million, compared with $361 million in 1988.

For the nine months, Zenith reported a loss from continuing operations of $21.0 million, or 79 cents per share, compared with a loss of $18.5 million, or 71 cents per share, in 1988.

ZENITH LIQUIDATING EVERYWHERE?

I have in the past two months seen more Zenith stuff being dumped all over the place. It seems they are very anxious to liquidate much of their inventory, and they are going about it somewhat foolishly.

An example is the major public auction: Multi-million dollar valuation surplus assets to ZDS held at the Rosemont/O'Hare Expo Center in Rosemont, IL on Thursday October 26, 1989. It was hosted by Ross-Dove Company, Inc., auctioneers. The 6 page heavy stock full color brochure that Ross-Dove put out on this says "More than 1100 new portable and desktop personal computer (386, 286, AT, XT, PC) compatibles with manufactures warranty, hundreds of new laser and dot matrix printers, scanners, tremendous quantities of terminals, peripherals, disc drives, and much more!"

Among things being auctioned were over 300 new TurbosPort 386 laptops (more on those later!) with 100MB hard drives (that's what it says folks!) and 2MB RAM; Over 200 new 386 compatible personal computers with 80MB hard drives and 1 or 2 MB RAM; over 200 new AT compatible personal computers; over 200 new XT compatible personal computers; over 200 new PC-style computers. From what I could tell they looked like the Z159's, Z248/12's, Z386's, Eazy PCs, TurbosPort, EGA color monitors and more. Large quantities of hard drives; over 5000 Interdyne 20MB tape backup systems, memory expansion cards, high resolution video cards, modems, math co-processor boards and much more.

I also understand they had very many flat tension monitor swivel bases. That upsets me because we have had these on "backorder" from Zenith for some time now. They have none for their dealers, but they have plenty to auction off? Many other computers that they can't supply to dealers were auctioned off. Make sense?

The dealers knew nothing about this from Zenith, nor did the dealers have any "first options" on this stuff. You'd think if they'd want to get rid of the stuff they could give their dealers first chance. You'd also think they'd keep enough stock to sell to their dealers instead of auctioning it all off and keeping their dealers and customers high and dry. Strange company.

If you want to see a partial listing, download the file AUCTION from our bulletin board.

Now on the TurbosPort 386 laptops. A great machine. With 40MB hard drive, 2MB RAM and modem, they list for over $8,000. In a typical Zenith smart move, they once again discontinue a product before the new ones are available, driving all possible purchases to other vendors. After all, if somebody wants a 386 laptop and Zenith will not have any available for several months (new 386 TurbosPort's not due out until sometime in December) they will be forced to shop elsewhere.

Anyway, the TurbosPort liquidation was one of the largest blunders I have seen Zenith make in a long time. I understand that almost overnight somebody on top decided to get rid of all the TurbosPort laptops. I also understand there were those who wanted to give the dealers first pick of them, but before anybody could do anything about that, they were gone! Ouch!

So where did they end up? I understand DAMARK, the mail order liquidators in Minneapolis received about 5000 of them and were liquidating them at $2999. There were DAMARK ads in the October 4th issue of the Wall Street Journal, and my latest DAMARK catalog featured them also. Then I see the November Computer Shopper and see a place called TREDEX in Los Angeles advertising them for $2999. I did not verify this, but somebody called me and said a place called Hi-Tech Liquidators in Atlanta Georgia had about 5,000 and they were selling them to

dealers and mail order firms for $2700. Perhaps they purchased them all and in turn sold them to TREDEX, DAMARK, and others? I don't know. I tried to reach Hi-Tech and was unable to locate them.

I was very upset with this and after lots of complaining and hounding I managed to get a handful of "dealer demo" units which we sold for $2949. They were considered new and with full one year factory warranty.

And you want to know what's really funny? Just received my latest Heathkit catalog, and lo and behold, there is the HS-3860 kit, which is the TurbosPort 386 in kit form for $4589 (was $5249). Now why in the world didn't they just scrap the kit, and liquidate the TurbosPort's in the Heathkit catalog for $2999? Kind of stupid to buy the kit for $4589 isn't it? And who in the world would want to buy the SupersPort 286 kit at $2599 with another $799 for 40MB hard drive (also in the Heath catalog) when they could have had the TurbosPort 386 for $2999? **Heath and Zenith - talk to each other!**

What happened to the Zenith Z386/16Mhz machines? They went pretty fast also, to be replaced by the 20Mhz models. Strange, I find out a place called Under-Ware Electronics in Wichita, KS, was selling a Zenith 386 with VGA card and color monitor (looked like the flat screen monitor), 1MB RAM, 1.2MB floppy, 1.4MB floppy, and DOS for $1,999! By the time I found out about this and contacted them, they were already all gone. They did tell me, however, that they were expecting another batch of Zenith computers in a few weeks. They didn't know what they would be, however.

Want a good deal on a Zenith computer? Any computer? Just keep your eyes open, they seem to be appearing all over the place!

ZENITH INTRODUCES ZCM-1492

Zenith is introducing the ZCM-1492 FTM VGA analog monitor. The new FTM is lighter, quieter and has more conveniently located controls, making the 'most ergonomic' monitor even more superior to conventional monitors. It will eventually replace the ZCM-1490 FTM.

The new monitor, which will retail at $999, the same as the ZCM-1490, features streamlined cabinet styling, improved electrical design (requires no cooling fan), and auto-sensing 115/230V power supply. It is a 14" fully VGA compatible analog input, RGB monitor with OCLI HEA nonglare treatment and Flat Tension Mask CRT for high brightness and contrast performance. Active display area is approximately 9.84" X 7.09", and uses P22 phosphor. Bandwidth is 28Mhz, with a Horizontal scan frequency of 31.49Khz. VGA text resolution of up to 720 (H) X 400 (V) and VGA graphics resolution of up to 600 X 480. Weight of the unit is down to 34 pounds.

I understand at this time that the unit is not yet available and is under quality hold.

MINISPORT RAM UPGRADE

MinisPort's Model 1 (1MB RAM) can be upgraded to a Model 2 by a factory installation of the optional ZA-1-9 1Meg RAM card. MinisPort ZA-1-9 upgrade forms are available from Zenith dealers to pass on to customers. The form includes a statement to be signed by the customer that they recognize that the data stored in RAM will be lost and they must back up the unit before sending it in. The 1MB RAM add-on card retails for $799, and the installation and mailback is another $200. The customer must send in the computer at his expense. When all finished, the unit will come back as a MinisPort, Model 2. As you can see, like any upgrade, you would have been much better off purchasing the Model 2 from the start.

ZENITH NEW STUFF

Zenith was expected to unveil a 33Mhz Z386 EISA computer featuring a new high-performance disk controller based on technology developed for Zenith's 32-bit Superset Bus. The controller will support up to 13 storage devices including a maximum of 2 floppy drives, four 15Mhz ESDI hard disks, and seven SCSI peripherals. The system will be standard with 4MB RAM.

H89 POWER SUPPLY PROBLEMS

I'm typing this on the newly repaired H/Z 89 with a single disk drive so I can't append your business address. However, the '89 is working and working well. I had earlier replaced the two 10,000 mf, 15 v, caps in the 5 volt supply line. With replacement of the 4,700 mf, 25 v, cap with one of the units you sent in response to my order, the unit came up and on line without problem. Just what happened I still don't understand, but the caps in both the 5 and 12 volt positive supplies were shot, electrolytic punctured, etc. The cap in the minus 12 volt line was not damaged for some reason.

After reading through the Heath instruction manual for the H89 I gather that the negative return lines from the three (CPU, terminal, and video) boards are not connected until they reach the power supply board. This is allegedly to prevent any arc discharge on the video board from damaging components on the CPU and terminal boards. If I can trust the manual, this is apparently why I had no damage except to the filter caps in my unit. **However**, in checking two other units in use here, the little circular plastic inserts in the metal frames of the CPU and terminal boards shrink with time. The negative connected frames on these two boards eventually are connected together through the vertical aluminum supports on the H89. I have inserted thin plastic spacers between the vertical supports and the two boards where the mounting screws engage the plastic inserts. Perhaps this will avoid similar damage in the future. On the other hand, maybe the filter caps blew without any assistance from a discharge on the video board. Who knows? Herbert L. Ley Associates, Inc./ P.O. Box 2047/ Rockville, MD 20852

MISCELLANEOUS BITS

* I understand the **early Z549 Zenith VGA video cards had a problem with interrupt 2** (IRQ2). If you are experiencing problems installing devices that use this interrupt and you have an early Z549 card, there is a ROM upgrade available through authorized Zenith service centers that may solve this problem. The new ROM is a 444-798 and the version that works is V2.72AZ. I understand that if you are in EGA mode, it will still take interrupt 2.

* I was told by Chuck Belling that the **Boca ATIO Plus does not work in Zenith machines**. I have not tried that card yet, if anyone has experience with it, let me know. We have just added that board to our product line on recommendation of BOCA Research.

* **dBASE IV has problems!** One of our customers, Dave Kaat, who is a crackshot dBASE programmer placed a frantic call here awhile back. He purchased two identical systems from us, Z248/12 with 80MB hard disk. On one, dBASE was running very fast, and very slow on the other! For example, a **FIND was taking 2 seconds on one system and 12 seconds on another**. Now when you do hundreds of FINDs in a program you're really talking problems with speed. He thought it may be a problem with the computer or hard drive. Since the hard drive was new, we knew it was not a fragmenting problem slowing things down, and everything else was running fine.

He finally discovered the problem. Before dBASE is run, he did a CHKDSK and found that when he had 578 K-bytes free, it was very fast. But, and now dig this - when he had more RAM free,

592K, it ran slow. In other words, more memory made it run slow. Solution? Increase buffers or files until you reach the 578K magic number. This is the first time I have ever heard that more memory is a punishment!

* IBM is at it again, trying to make all the PC makers in the world pay them a **patent royalty fee**. Their blackmail states that if they do not pay up for previous machines, they will not license them for new patent licensing agreements. This is supposed to be a threat for those companies who want to "legally" produce PS-2 compatibles!

* **Toshiba has just introduced a 5.9 pound laptop**, to compete with Zenith MinisPort. Main difference is it is less expensive, listing at $1,699, and faster, running at 9.5Mhz. But more importantly, they have managed to squeeze in a 3.5" 1.4MB disk, while Zenith's use a proprietary 2" format. As far as I can see, the Toshiba and Zenith are the only really serious computers, since they both have disk storage and the others do not.

* In answer to a past **REQUEST for a DIRectory program on PC's that would give subdirectory sizes**, Michael Porter writes "...I have had good luck with a PC version of V-Filer. As you probably know, V-Filer in its original form was a shell program to run under ZCPR. It allows files to be 'tagged' so that mass operations (copy, delete, etc.) can be performed. The PC version I use is available on the Zenith SIG on CompuServe. I think the file name is VF150.ARC. It uses color, but also works on mono screens.

On the same subject, Allie Lingo called to tell me that a $19.97 subscription to PC Computing will also bring you a free disk. He says there is many useful programs on that disk including one that gives the space in the subdirectories. The program is called DIRMAGIC. It does many things, and uses the function keys. It can sort by name, size, date, extension, date, original order (no sort) and more. There are copy, delete, rename, and move functions which work directly while you're viewing a file. Allie sent me a copy of what he printed for the manual on just this one program, and it is 15 pages. Seems like a very useful and powerful program. PC Computing/ POB 58215/ Boulder, CO 80321-8215.

Pete of Anapro downloaded this on my bulletin board: October '89 **daylight savings time came and went and my H89 clock still showed the old time!** Seems that my CLOCK program had a small "undocumented feature" in the October daylight routine. Not to worry, all has been fixed. I don't know why the problem has not been reported to me by anyone (I found this one myself). A good copy of the CLOCK.COM has been uploaded to the QUIKDATA RBBS. Because of their size, the source files have not been updated but will be available to those interested for a $5 handling fee. Since ANAPRO no longer sells any clock products, the program is being released for non-commercial use by Huggies. I would prefer if any comments or questions are directed to H-SCOOP. That way, others would benefit from the dialogue. I will respond as time permits me. - Peter Shkabara

* M. Greene sends in a correction to a recent issue where I discussed hard drives and subdirectories. He writes "...you seem to **make the same error as do many in describing directories and subdirectories**. What you term a subdirectory is actually a directory. When you place your various programs on the disk, you are 'dividing' the disk, **not** subdividing." He then shows a diagram of directories and subdirectories. And right he is, I stand corrected. When you further divide your directories, that is a subdirectory!

* Paul Herman's Z-100 LifeLine, October 1989 issue #4 has recently been mailed out. He mentions that he is working on **software to allow users to install the 1.2 meg 5" drives and the 3.5" drives in the Z100 and they will be PC format compatible.** I'll let you know when he has completed this. He also mentions a **new ROM being developed** for the Z100 which may include PC

type graphic character table at F000:FA6E, which makes lot of ZPC patches unnecessary. Much more in this issue. If you have a Z100 and don't subscribe to the newsletter, you may want to check it out. Paul F. Herman Inc./ 3620 Amazon Dr/ New Port Richey, FL 34655/ (813) 376-5457.

* Gregg Shadduck sends in an answer to a request. In issue 115 page 3, Joe Pannon was looking for **info on a brand of LIM board proven to work well in H/Z151/161 computers**. Gregg says to check issue #114, page 4. This is where I printed a report on RAMPAGE memory expansion, and it did discuss the AST Rampage EEMS board and the Z151. There were no speed comparisons of different boards, however.

VENDORS

Note: All items for submission must contain the vendor or individual's name, address and phone number for consideration of inclusion in this column. All announcements must be kept short and to the point. The smaller the end user's need or desire for a product being mentioned, the shorter the announcement must be. Any lengthy announcements will no longer be considered for editing.

Please note that H-SCOOP is a separate entity from QUIKDATA, Inc. Products mentioned in H-SCOOP are only carried by Quikdata if specifically mentioned.

We don't print much in this column anymore since products are not H/Z specific like they used to be. However, I stumbled across these two items and they both look very interesting.

WELTEC PHD
Portable Hard Disk for Laptok Computers

It use to be that adding a hard disk to your laptop was next to impossible. But now there's PHD.

PHD is the solution for laptop users who need the increased storage of a 20MB hard disk with the ease of serial port interface. Plus, PHD includes an internal battery pack that runs up to two hours on a single charge.

PHD--it's simply the highest degree in hard disk technology available for laptops.

Benefits: Expands the usefulness of laptops, * Compatible with all laptops, * No proprietary hardware is necessary on the host computer, * No more swapping floppies, * Makes data more manageable, * 27 times the storage capacity of a floppy disk, * Runs up to two hours on a single charge, * Simple set-up.

Features: 20 Megabytes of convenient hard disk storage, * Serial port interface, * Self-contained rechargeable battery pack, * Time-out utility for extended battery life, * Low battery detector, * Compact and portable, * Includes serial cable, battery charger, and PHD boot disk, * FCC, UL, and CSA approved, * One year warranty. WELTEC digital inc./ 3002 Dow Ave., Tustin, CA 92680. Phone: 800-333-5155 or (714) 669-1955/ FAX: (714) 669-8918.

Editor's note: I have not seen this unit yet, nor have received any feedback on it. If anybody has or is going to try it, please write me at H-SCOOP and let me know so we can write a report on it.

PRIVATE EYE
12-INCH DISPLAY YOU WEAR ON YOUR HEAD

The chief obstacle to shrinking the size of a laptop is the display. Private Eye, from **Reflection Technology**, allows laptop makers to bypass that difficulty altogether by removing the display from the system unit. The miniature monitor, about half an inch across, is basically an extension of the technology behind camcorder view-

finders. When held near the eye or worn on a headset, Private Eye displays what appears to be a 12-inch monitor floating 2 feet in front of you.

Drawing less than a half a watt of power, Private Eye has a resolution of 720 by 280. While Reflection Technology plans to work with other vendors to develop new products based on its system, Private Eye Starter Kits will be available at the beginning of the year to PC users who wish to access and experiment with the technology. [I'd like to see somebody 'looking over your shoulder' with this thing. Seems to give your privacy -ed]. Each kit includes an XT/AT-compatible, CGA-compatible Private Eye; a connecting cord; a headset; installation software; and a programmer's guide for Private Eye. Private Eye measures 1 by 1 by 3 inches and weighs all of 2 ounces. Private Eye Starter Kit, $495. Reflection Technology/ 240 Bear Hill Rd./ Waltham, MA 02154/ (617) 890-5905.

REQUESTS

*   While I'm writing I thought I'd see if you or perhaps one of your readers could help me solve a problem. Several years ago I bought and installed a Gemini emulator board for my Z100. I chose Gemini for compatibility with computers at work. After waiting for prices to come down on hard disks, I finally bought an Eazy-WIN system through Quikdata last year. Before buying it, I asked Quikdata about compatability between Gemini and Easy-WIN. The person I talked to wasn't sure and suggested I call UCI. The UCI technical people assured me that there would be no problem. They were wrong. While I got the Z-100 side to work perfectly with my new hard disk, the IBM side of the Gemini board wouldn't work. When trying to format the IBM partion of the disk through the Gemini board, I would get the message "Can't talk to controller." I called the Gemini folks to see if they could help me. They said they'd heard this story a hundred times before. They didn't offer much hope, but made a few suggestions (limit the size of partitions; make the IBM partition the first one). I then called UCI and they again told me it "shouldn't be a problem" and repeated some of the instructions. After reveiwing the documentation and repartitioning to put the IBM partition first, I tried again and got the same result. At this point I am forced to run IBM software from one floppy, and I'd sure like to be able to use my hard disk with the Gemini board in IBM mode. Do you or your readers have any advice for me (aside from ignoring UCI's technical advice)? Thanks for your help. Judson E. Stailey/ 7202 Fencd Line Drive/ Austin, TX 78749

Editors note: Anybody try this that can help? I know with the Eazy-PC from UCI and the Eazy-Win from UCI you can easily do this. I have been told by UCI that the Gemini works also, but since we never sold the Gemini, I have never tried it. Seems to me, I have had feedback from people who have purchased the UCI-Win setup and the Gemini that it does work. Can anybody help?

*   Does anyone recall an article or have knowledge of using 4164 RAM IC's in an H89? to obtain 64K with less power? How difficult and whats involved. John Turley/ 372 Villa Ave/ Buffalo, NY 14216/ (716) 876-3110.

*   We are looking for Eazy PC add ons such as modem/ serial/ memory adapter mouse, slotless clock technical (service) manual. Please send catalog, info etc., to David J. Solonche/ Bioengingineering/ University of Connecticut Health Center/ Farmington, CT 06032/ (203) 679-2965/ FAX (203) 679-2670.

CLASSIFIEDS

Classified ads can be placed in this section free of charge by any H-SCOOP subscriber. Non-subscriber's ads are placed at $10

per insertion in advance. Ads to appear more than once must be submitted separately each month publication is desired - maximum 2 months with 2 month wait. When placing ads, try to keep in mind the 'devaluation' of computers and components and adjust your price accordingly.

FOR SALE--Seagate ST-251-1 40 Meg. Hard drive - $300. Z449 EGA Video Card -$60. H/Z-386 HD/FD controller card - $125. Everything as new. Prices include shipping. James E. Bovenkerk/ 81 S. Broton Road/ Muskegon, MI 49442-9417 Phone (616) 788-3519.

FOR SALE--Working Z-100 Hard drive controelr and Data separator with cables - $150 of Best offer. Call after 6 p.m. EST (616) 429-6481. Steve Billick.

FOR SALE--Two Quantel dumb terminals. Also, I have 1 terminal called an Emulator, would like to find it a good home. If interested, please contact Steve Weber/ 216 S. Wisconsin Dr/ Howards Grove, WI 53083/ (414) 565-2136. I will not refuse any resonable offer, considering I have no idea on the cost of either models.

WANTED--I am interested in finding a model Z-H8 Trionyx CPU card for 2/4 MHZ operation of an H-8. I will consider system purchase less any drives or terminal or software. Any idle H-8's (4MHZ) out there? Let me know here if you want to part with system or cards. John Turley/ 372 Villa Ave/ Buffalo, NY 14216/ (716) 876-3110.

FOR SALE--Zenith Z-148 with 640kb RAM, Optional daughter board (provides one half-length and one full-length expansion slot), Western Digital hard disk controller, Seagate ST-225 20mb hard disk, (1) 5.25" 360kb floppy drive, Zenith mono/graphics monitor (green display), Keyboard, Owner's Manual. Asking $750. Everything works perfectly. (608) 785-3703 days, (608) 788-9200 evenings.

WANTED--WORDSTAR FOR CP/M. I would like to get a copy of WordStar for CP/M on 5 1/4" soft sector disks that will run on an H-89 computer. If anyone has this software for sale, or knows anyone who might have a copy they would be willing to sell, any information would be appreciated. Jeff Fritsche/ (608) 785-3703.

FOR SALE--The following software items: NewsMaster low budget desktop publishing (original version 1) $10. AutoSketch CAD drawing package (original version 1) $10. CadKey 1 3-D CAD program. Original selling price $500. Supports VGA. $40. Timeslips III time billing software $20. All these programs are for PC-compatible computers. Also Aox Z-Master 386 upgrade for H/248 and 241 computers. Replaces your 6 or 8 MHz 80286 with a 20 MHz 80386. Has 1 meg on-board expandable to 4 meg just by replacing SIMMs. Can also use Z-415 or Z-445 boards or AT-style memory boards for expansion. Replaces your old CPU card -- easy installation. P. Swayne/ 155 Baker St./ Coloma, MI 49038/ (616) 468-6637.

WANTED--H/Z-19. IF YOU HAVE ONE FOR ME CALL 8AM TO 5PM WEEKDAYS 800 776-1491. OTHER TIMES IT IS MY BBS 300/1200/2400 WITH PACKET RADIO AND LINK TO OTHER LIMA, OHIO BBS'S (BOTH REAL TIME). IF YOU CALL AT 2400 ONLY ONE OTHER BBS CAN BE CALLED, OTHERWISE 3 CAN BE CALLED. Bill Pinkston.

ASK HANK

This column is to provide technical information to our readers. If you have a question or problem feel free to write in and we will try to provide the correct answer. If any readers don't agree with the answer I have [hey, I'm far from perfect!], send in your views and we will review and print them as needed. This column will be printed as space provides.

QUESTION: From what I have read, SpinRite by Gibson would be an indispensable and unique tool, even if one used it but a few times. However, Doc Campbell, in the March '89 H-SCOOP said that he could not use the Zenith FORMAT after running SpinRite. Does anyone know any more about it? Is the MSDOS 3.3+ or other FORMAT programs like that of PC Tools O.K.? I realize that the Norton Utilities are excellent, but would one have to have them to run SpinRite? Alkis J. Sophianopoulos/ 2994 McCully Dr., N.E./ Atlanta, GA 30345.

ANSWER: You do not need Norton to run SpinRite, as SpinRite is a stand-alone program. I have not had need to FORMAT my hard disk after running Spinrite, so I have not run into any such problems. Besides, Zenith's FORMAT program now does not any longer re-format the entire surface, but only wipes the DIRectory clear like most other FORMAT programs do. This started, I believe in DOS 3.2. As another point, Spinrite II is now available. Whereas the first Spinrite would only deal with partitions of "standard" size, i.e., 32 megs or smaller, the new Spinrite works with partitions of any size, and is compatible with DOS 4.0 and third-party large partitioning device drivers.

Spinrite II is available for $25 as an upgrade fee to registered owners of Spinrite. Outright purchase is $89. The number to call for the upgrade information is (714) 830-6200. Address is Gibson Research Corp/ 22991 La Cadena/ Laguna Hills, CA 92653-9704.

QUESTION: I just installed a second parallel port in my Z248 and it doesn't work. What's wrong?

ANSWER: There is not enough information here to narrow down the question. One thing many people overlook is they forget to run the **CONFIGUR** program. In some DOS versions this must be run to have the computer recognize the extra parallel port. Also be certain the parallel port is set for LPT2: If all that is working, please note that you need to use the MODE command to select the second LPT2: port for printing, unless you have special software that will actually select and output to both parallel ports to drive two printers. I use dBASE III with my Z248 and have written code which makes use of two printers and it works fine.

On the other hand, we have seen some mysterious problems with Z248/12 computers. We tried several third party parallel cards and most of them, including Zenith's, would not work in this computer. It was impossible to get a LPT2: The only card I have found thus far that works in this computer is the BOCA IOAT42 card, which contains one parallel port and two serial ports.

If you want to see if your system is recognizing the port on the lowest level, run DEBUG. At the (-) prompt, do a **D40:0** (return) and you will see a screen of information. The first line is the line we are interested in as it will list any serial and parallel ports found. The first half of the line to the left of the dash (-) is serial ports, the second half is parallel ports. In my system, my line looks like this:

F8 03 F8 02 00 00 00 00 - 78 03 78 02 00 00 00 00

The numbers are read in groups of four with the second digits before the first. Thus F8 03 is telling me I have something sitting at 03F8, or 3F8, which indeed is the first serial port address. It also tells me I have something sitting at the second serial port address 2F8. To the right, I can see I have something occupying the first parallel port address 378. I can also see I have something occupying the second LPT2: parallel port address at 278. If there was nothing here the entries would be 00 00. If the port is shown as being present and it still does not work, there may be other problems. When we tried the thrid party cards, they did not even show up at 78 02 (278). Note these values are Hex values.

As a further test, before you install the extra ports, these values better be zero, or you are having, or will have a conflict someplace.

This answer is an **ASK LEE**. John Turley purchased the H89 Superset and had problems which he thought were memory chip speed related. I print this here because it demonstrates some things to try when having some H89 problems. Since this has to do specifically with TMSI's products, I sent his problem to Lee Hart of TMSI and he responds:

Henry Fale of Quikdata forwarded your request for help to me. As I understand it, you are having problems with the Superset with the T.I. TMS2114-15NL RAMs supplied, but it's OK if you use the Intel D2114AL-2 RAMs I supplied with a Flicker-Free kit purchased last year (Dec 88).

Video RAMs: I agree that there's something odd here. The TI parts are 150 nSec, which should be plenty fast enough. I went to them because some people had trouble with 200 nSec parts (on very old terminal boards, where faster RAMs have to make up for the time lost by other slow chips, or newer H19-A board that only deliver 4.25 volts to the logic).

Things to Check: 1. Be sure the RAM's supply voltage is +5v +/-% (4.75 to 5.25v). measured between pins 9 and 18. Power supply problems, bad voltage regulators, or excessive voltage drop in the inductors L402-406 on newer boards can cause the supply voltage to be too low to work right. [Editors note: When I work on H89's, or any TTL logic for that mater, I like to see the voltages range from 4.9 to 5.1 volts. I have experienced reliability problems when the voltage dropped much below 4.9 volts. Many times the bridge rectifier and/or the heavy duty 5V regulator must be replaced.]

2. Be sure the 470 pF capacitor on pin 9 of U419 (newer H19-A) or U429 (older H19) has been removed. Leaving it in causes RAM problems.

3. Be sure you've made the Z80 3 MHz conversion as shown in the installation instructions. Other 3 MHz conversions, or trying to run the terminal's Z80 at 4 or 6 MHz won't work right.

I've had one case of a very old TLB (copyright 1978) that had to have the three 74LS157's at U463-U465 replaced with 74F157's. I don't have any more at the moment, but have ordered some and will send them if none of the above steps resolves the problem.

Or as last year, you can send me your terminal board, and I will get it working. If downtime is a problem, I have some spare boards so we can work it on an exchange basis if you tell me whether you need a newer or older style board.

QBBS

This column which will be printed from time to time will contain messages from our Quikdata Bulletin Board System, a TBBS system, which were left from readers and customers. When some important information is on the board and perhaps relevant answers appear, we will print them in this section.

From: ALLIE LINGO
  To: ALL
Subj: MPI PRINTER SOURCE FOR REPAIRS

For all of us who own one of the MPI printers (88, 99, 350, SX etc.), I may have some good news. Recently I received information from a company called CYBER-FORCE/ 3508 E.T.C. Jester/ Houston, Texas 77018/ (713) 682-0668 informing me that they could provide spare parts, service, ribbons, etc. for the MPI line of printers. The information said to ask for CONNIE. I have since ordered parts and a couple of ribbons for a sick MPI 99G. I received the parts and ribbons in about 8 or 9 days from the placement of the order. CYBER-FORCE also supports the Televideo brand of equipment as well as MPI printers. Hope this may help other MPI printer owners in their hour of need.

From: BRIAN HANSEN
  To: NEIL O'CONNOR (Rcvd)
Subj: REPLY TO MSG# 870 (DRIVE CONTROLLER CARDS)

There is no such thing as a dumb question. When we all started out in computing as novices. You can add a secondary controller to the H/Z158 computer. I used a COMPATICARD as a secondary controller. Used as a secondary you can't boot from it but you can add 2 internal and 2 external drives to the computer. It supports all 4 drive sizes and with an adapter cable can even use an 8" drive. The Compaticard can also be used as the only controller [primary] but not in the H/Z158 since the drive controller is part of the VIDEO/ FLOPPY/ SERIAL card. Did you know that the 158s' controller can run 4 360K drives with out any modifications? Yes it can I did it and have a small article on how to do it if you are interested. The article was in H-SCOOP but I really don't remember when. There are other good add on controllers I just know that the COMPATICARD will work in a H/Z158.

From: BRIAN HANSEN
  To: NEIL O'CONNOR (Rcvd)
Subj: REPLY TO MSG# 870 (DRIVE CONTROLLER CARDS)

Neil, This is how I added 3.5" 720K drives to my H158. You would only need another controller if you want to use 1.44M drives.

The following information tells how I added two external 3.5" drives to a H158 Series Computer. I have no information on this working with other computers like the Z159 Series. If you don't feel confident about tearing apart your computer please leave well enough alone. You could damage your computer!

I had 4 floppy drives on my H158, with the external drives being 3.5" 720K drives and two internal 5.25". The unit was later changed to add a 20Meg Hard Drive with one internal floppy. Both ways worked o.k.

My Floppy/Video board is #85-3057 and it can support 4 drives. The Service Data that came with my H158 covered a slightly older board and it too could run 4 drives. Note this controller doesn't have the necessary hardware to run a 1.2Meg 5.25" or 1.44M 3.5" drives even though the latest software can support them. A Secondary Controller such as a 'Compaticard' is needed to support high density drives.

I was using a Toshiba #ND354A Drive and Toshiba #ND352 Drive in an external dual 1/2 Ht. Drive cabinet designed for 5.25" drives. The drive hardware kit included the necessary 3.5" to 5.25" adapters. The first drive was jumpered for DS3,RY and the second was jumpered for DS4,RY. The Adapter PCB, part of Toshiba kit jumper was set to 'PCXT' ('A' on newer boards this disconnects the Pin #34 from the drive to the controller.) Pin #34 is not connected on the H158 controller so even a drive that doesn't disconnect should work. That pin is used for indicating 'Disk Changed' or 'Ready' to an AT style controller. The drives I used had a 1000 OHM Termination that is, like most of the newer PC Compatible drives, permanently wired in. The additional 1000 OHM load doesn't excessively change the termination presented by the internal drives when 1 external drive is added. If two newer style drives are added eternally then you should change the terminator on the internal drive to a higher value to compensate for the two additional 1000 OHM loads. On my Internal drive I used a 330 OHM resistor pack since I had two external drives. This way both 34 Conductor lines where still terminated and the controller was not seeing too much of a load.

To connect the external drives I unplugged the 34 pin ribbon cable from the drive controller and used an AP Products #922576-34-I INTRA-CONNECTOR. This connector has 1 female socket and 2 male connectors. I plugged the Intra-connector into the controller board and the internal drive ribbon cable into the side connector of the adapter. I then ran a new 34 conductor cable (not twisted like most IBM Style cables) from the external drive through one of the back cutouts on the H158 and connected it to the top connector of the adapter. The internal H/Z ribbon cable connector might have a key pin in it preventing the cable from mating with the INTRA-CONNECTOR. I removed it and was careful in connecting the cable. A pin on the adapter could also be cut off instead. The top connector of the INTRA-CONNECTOR is close to the top of the cabinet and some ribbon connector plugs might be too high when plugged in. I used a Radio Shack connector that was not too high. Quikdata also makes a 'Y' Cable #CABLY-34 that also would probably work. I purchased the INTRA-CONNECTOR from Digi-key Inc. It is used by Electronic Service Personnel to allow testing signals on a ribbon cable. Most bigger Electronic Parts Houses should carry it. I got my drives from Alpha Scientific. I saw their ad in 'COMPUTER SHOPPER' a great place to find good deals.

Be careful when selecting 3.5" drives. The IBM Standard uses two drives only. Make sure that the drive can use all 4 drive select inputs. I have a Toshiba 1.44M drive that only has DS1 and DS2 other drives might be the same. Most 3.5" drives use a 34 pin header connector and come with some sort of adapter to convert it to the 34 pin edge connector. Data gathered from the Compaticard manual indicates that Sony drives use a 26 Pin Header I don't know if they provide an adapter to convert to standard 34 pin edge.
Also the manual mentions a 3.5" drive with a 600 RPM speed. I have never seen one and have no idea who would make such a drive. 300 RPM drives seem to be the standard. Make sure the drive is mounted in a 5" frame or comes with a hardware kit of parts, unless you use a cabinet made for 3" drives and then your 34 pin cable might need the proper connector to mate with a 34 pin header.

The H158 doesn't use switches to tell the computer how many drives are connected as does a PCXT. The number of drives is determined during Power Up Tests so the external drive must be powered up first or at the same time as the H158 or it will be missed during the Power Up Tests.

I used the DSKSETUP.COM program supplied by H/Z with their MSDOS 3.21 to configure the FLOPPY DRIVES to 3.5" 720K type. If you are using a different brand of MSDOS then DRIVER.SYS could be used to add the additional drive or DRIVPARM= to modify an existing drive. Note I have been told that IBMDOS doesn't support DRIVPARM in it's later versions >3.30. I don't think that any other brand of MSDOS besides ZDS's will support 4 floppy drives directly so DRIVER.SYS or DRIVPARM must be used to add extra drives. Think support for 3.5" 720K drives was added at version 3.20 of MSDOS. My original 3.5" setup had two internal 5.25" drives and two 3.5" external drives. When I added a hard drive and removed the B: internal drive, with the two 3.5" externals disconnected, MSDOS swapped B: to A: as normally happens with one floppy. With the 3.5" externals on the unit, B: doesn't swap to A: as normally would happen. It kind of gets lost.

Hope this will be of some assistance to those who would like to add more drives to a H/Z158 Series Computer.

From: HENRY FALE
  To: NEIL O'CONNOR (Rcvd)
Subj: REPLY TO MSG# 870 (DRIVE CONTROLLER CARDS)

I believe Brian Hansen addressed this properly, but yes, the Compaticard will allow you to handle the 1.4 meg 3.5" drives in your system. What you will need is the CCARD2, MF355, and CABL-S5 to connect them together. You simply remove the B: floppy and install this one (already in 5" frame with standard 5" connectors, and plug in the compaticard in a vacant slot. If you want to go 720K 3.5", your controller can handle that and it would be simply a matter of swapping the drives. You must have DOS 3.2 or above in this case. Hope this helps. If you need additional info, feel free to call and speak to me.

PEEKING/POKING

ZENITH! WHAT ARE YOU DOING? - AGAIN!

As you read two issues back, the Zenith stocks are down again, which will make this the third quarter Zenith is operating at a loss. It looks like their cost cutting measures such as poor service, cutting out tech support lines, having under stocked stores with ignorant salesmen and technicians, back orders, and pricing their computers far above competition (and on and on) are finally catching up with them. Now instead of making matters better they are making them worse, driving away customers and dealers.

I mentioned several issues ago about the asinine move of Zenith's of requiring the old monitor ROMs be returned back when ordering new upgrade monitor ROMs from the Parts Department, or pay $100 per ROM not returned. Perhaps this is one of Zenith's moves to generate more money for their stockholders. It took me some time to track down the idiot that this directive originated from and I won't embarrass him here by naming him. After talking to him, I realized that he did not deserve his position at Zenith and should probably be doing something simple where major decisions are not required - like selling vacuum cleaners. When questioning his motives, he said the ROM code is proprietary and they did not want anybody to get an old ROM so they could burn more (old?) ROMs.

Now I appreciate his position on the proprietary code mater, but making one turn in the old ROM will not solve that problem. If somebody wants to make more ROMs he certainly is not going to use the old ROM for that. And if he simply wants to use or steal the code in the ROM, he certainly does not need the old ROM in his hand! He will take the new ROM and make copies of that before he installs it. He could also do a memory dump on the monitor ROM segment, save it to a disk file, and either have a copy of the code which could then be used to burn all the ROMs wanted. So while the concept of their "copy protection" is worth considering, the way they are going about it will not prevent one unauthorized ROM from being burnt. They are only hurting the end user, the dealer, and in the long run, themselves.

I mean, gimme a break! Why make copies of the old ROM when you have the latest and greatest one? Or why remove your upgraded ROM from your system, place the old one back in, and then do a memory dump to disk? Logic? I doubt it. Folks this is a VP in a department, and this is what is running Zenith! Returning the old ROM will not solve one thing. What it will do, is make it much more difficult for the end user to upgrade to the newest version, which to me, appears to be discouraging ROM upgrading for the latest PC compatibility - something Zenith should take an opposite stand on - and has in the past. After all, the better the compatibility, the better Zenith looks!

And as time went on (I planned this editorial to be printed three months ago!), I was informed that it was not only the ROMs but PALs, etc. In fact, anything with a 444-xxx number must be returned.

Getting hot? You bet! I next find out that when end users order directly from their Heath store or from the factory they do not have to return the old 444's! I guess this is only a blessing reserved for the dealers.

In a case like ours, one must go through the hassle of packing and returning the old ROM. For Quikdata as dealers, it is a major hassle. We can no longer stock quantities of ROMs as we used to do for immediate shipping, because we have to send back old ROMs for every new ROM we order within 30 days or be billed $100 extra. So we have to collect a few old ROMs, create a bunch of paperwork, call and get a return authorization, and then send them back. Any possible profit for those orders is eaten up by the extra labor and paper work involved.

So now we send out a sheet telling the ROM customers to return their old ROMs explaining Zenith's paranoia. One customer wrote back with his returned ROM, "I tried to sell copies of the old ROM to all my friends, but for some reason, they didn't want an obsolete ROM from an obsolete computer! I just can't imagine why! You are correct, foolish management. Thanks."

Another egg was laid when somebody (would not doubt if it was that same VP fool that started the above) decided to make it prohibitive for end users to obtain service manuals for Zenith equipment. Remember the old days when any of your Heath products had all the necessary documentation enabling you to know the world about a product? In the long run, it meant less problems and support from Heath. Smart move. Zenith came along and fixed that too. Manuals are not as good anymore, no detail, etc. Grant it, computers are so complex the average guy can't touch the innards. But many can, and many are interested. Since Zenith cut their technical support lines, more and more service manuals have been sold to repair shops and end users to allow them to diagnose and troubleshoot their computers and monitors. Sounds OK. Those that want the extra info, can obtain it (if they have any idea in the world what the Zenith part number is - which is not available anywhere) and pay extra for it. Another money maker on Zenith side. Reasonable, $30 bucks or so.

The last batch of service manuals we ordered (several months back) were billed at $125 each! We ordered some for the ZCM-1490 and the Eazy PC computer - both came in at $125, and both were returned pronto. Just before this move, we used to be able to obtain them for about $30. I guess according to what a customer told me, he saw on the Heath BB that Zenith was losing money on their service manuals - they could not even come out on the paper cost! Ridiculous! I can xerox one of their 50 page manuals for $7.50 (that's figuring $0.15/page). So how they are losing money at $30 is beyond me. But just assuming they find a way to lose money on something like that, and I'm certain Zenith could figure out a way to do it, a 400% increase in price? Folks, this certainly will not help the Zenith customer relationship one bit. If they wanted to raise the price perhaps to $40 or something, fine, but from $30 to $120? I can see instances where one will pay more for the manual than for the product itself.

Cost generating methods like this we do not need and should not tolerate!

Zenith also mentioned stock balancing as part of their cost cutting measures. We are already feeling that "idea". We have quite a number of products from Zenith now on "back order".

In general, service and support have been going down at Zenith. One of our corporate clients who used to purchase lots of Zenith computers told us he is not purchasing Zenith any longer. He said Zenith is too high in pricing and their service is going downhill. He, and many others I have spoken to, have condemned the Heath stores for various reasons. I guess the last straw for the client was when he went to a Heath store for a new catalog and they would not give it out to him, but told him they would take his name and mail him one! Now that makes a lot of sense. He said from now on he will buy other computers that he can obtain at lower costs and get better service on.

Well, I guess on the bright side, we have to look at Zenith's one year warranty, which is as good or better than others, and at least they do make service manuals available while many others do not. And I have noticed Zenith slowly becoming more price competitive with their computers. Well I don't know about you, but I'll take the old Heath run business back any day.

Zenith/Bull? Hmmmm.

I'll end this with a request. We have sold lots of upgrade ROMs previous to Zeniths stunt. Now we cannot stock many anymore. If anybody has the old ROMs, especially for the Z151 and Z158, I would really appreciate if they would send them to me so I can

keep my stock balance in a better state. It will not directly benefit you (unless you want a ROM someday and I have them in stock because of people turning in old ROMs), but it will help us better serve our customers.

QUIKDATA BITS

Find below the latest update to our 9/89 catalog. Memory prices, as Lee Hart of TMSI predicted, have come down to where they were before our Government tried to help us:

PRICE CHANGES

MEMORY PRICES ARE STABLE! (pg 23)
M256-15 - $2.95
M256-12 - $3.25
M256-10 - $3.49
M256-08 - $4.10

NEW COMPUTER PRICING
Zenith has dropped prices on many of their computers, and we pass this along to you.
SupersPort 8088 **Z184-1** Laptop dual 3.5" drives $1445 (pg 4)
SupersPort 8088 **Z184-2** Laptop 20mb hard disk $2145 (pg 4)

SupersPort 286 Laptop **SS286-20** 20mb hard drive - $2795 (pg 4)
SupersPort 286 Laptop **SS286-40** 40mb hard drive - $3195 (pg 4)

Z248/12 80286 1.2mb floppy, 1MB RAM, HD/FPY controller, no video
Z24812S1 - $1495   Basic system, no video or hard drive (pg 5)
Z24812S2 - $2049   EGA video, ST-251 42 MB hard drive   (pg 5)
Z24812S3 - $2295   EGA video, 80MB 28ms ST-4096 (pg 6 top)

ZENITH Z386 16MHZ IS DISCONTINUED, 20MHZ MODEL REPLACES IT
ADDED: **Z38620S1** 20Mhz Z386 1MB RAM (expandable to 8MB on main board), 3.5" 1.4mb floppy, ESDI controller with 1:1 interleave, two serial ports, one parallel port. No video.
Z38620S1 - $2895   Base system (pg 6)

Z386 25MHZ SYSTEM with 2MB RAM, ESDI controller, no video. Base system.
Z38625S1 - $3999   (pg 6)

Z386 33MHZ SYSTEM with 2MB RAM, 1.4 MB 3.5" floppy, ESDI controller, two serial ports, one parallel port, no video.
Z38633S1 - $4895   Base system (pg 6)

MEDIA MASTER price increase
MM150 - $45   (pg 12)
MM100 - $45   (pg 17)

PGVA-16 - $289   Paradise 16-bit VGA 256K card (pg 26)

PVGAPLUS - $229   Paradise VGA Plus 8-bit video card (pg 26)

KXP-145 - $8.95   KXP-1124 Panasonic ribbons (pg 26)

TM-248/SM-248 - $59   Service manual for Z246/286. Price good until supply gone. Zenith just raised all their prices to $125 for all service manuals. (pg 7)

ZCM-1490 Flat Screen VGA color monitor reduced to $669 (pg 25).

DJ10 TAPEBACK unit reduced to $329 (pg 11).

ZOOM HALF CARD 2400 BAUD INTERNAL PC MODEM
ZOOMHC24 - $119   (pg 24) price reduction

NORTON UTILITIES ADVANCED EDITION price increase
NORTON - $99   (pg 11-12)

PRODUCT ADDITIONS

COMPATICARD IV - high speed one megabit per second data transfer rate to support 2.8MB 3.5" drives and high speed tape drives. On-board ROM allows booting from any attached drive. All drives supported, supports up to 4 drives (pg 18).
CCARD4 - $139

NEED RELIABLE LOW COST EMS MEMORY? We now have the BOCARAM XT EMS card and the EVEREX MAXMAGIC EMS card for PC/XT computers. Will add up to 2 megabytes of EMS memory. Uses standard 256K DRAM chips. RAMdisk and print spooler utilities (page 10).
BOCARAM - $139
MAXMAGIC - $95

We now carry **LAPLINK III** for serial and/or parallel data transfer between computers and laptops (pg 11).
LLINK - $129

Just received the 2MB version of the Zenith MinisPort computer. Same as 1MB but more RAM. (pg 5)
MINISP-2 - $1650

THINGS OF INTEREST:
(1) **Amber TTL used monitor** - $45

(4) **ZVM123 used green screen composite monitors** in good condition and working fine. Used for Z100, but will also work with H/Z PC series with RCA composite output. Complete with composite RCA cable - $45 each.

Have several brand new **Princeton PSM-03 Analog VGA monochrome white phosphor 12" monitor** with 800 x 630 resolution. Displays infinite gray shades. We got a special price and are offering them at $139.

(4) **H77 dual full height drive cabinets** (one that was used for the H89) with heavy duty power supply and cable. Make offer.